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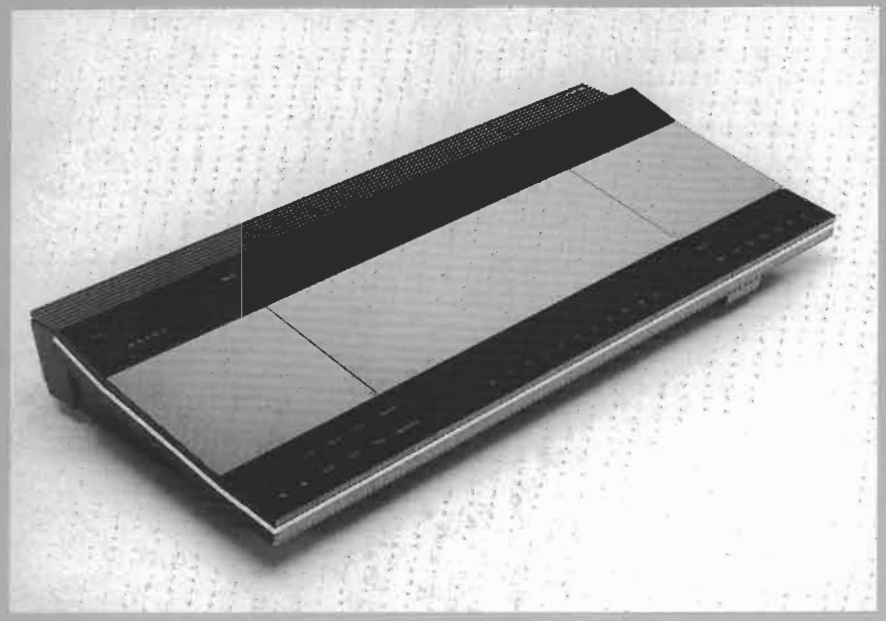

Product information

Beocenter 9300

Bang&Olufsen

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Products and systems mentioned in the text are described in details in these Product Information booklets:
- *Video System MX 7000*
- *Beovision MX 7000*
- *VisionClear*
- *Beosystem 7000*
- *Beosystem 2500*
- *Beosystem 2300*
- *Beolab and Beovox loudspeakers*
- *Beolab 8000*
- *LCS 9000*

Kaa, Oct. 1993

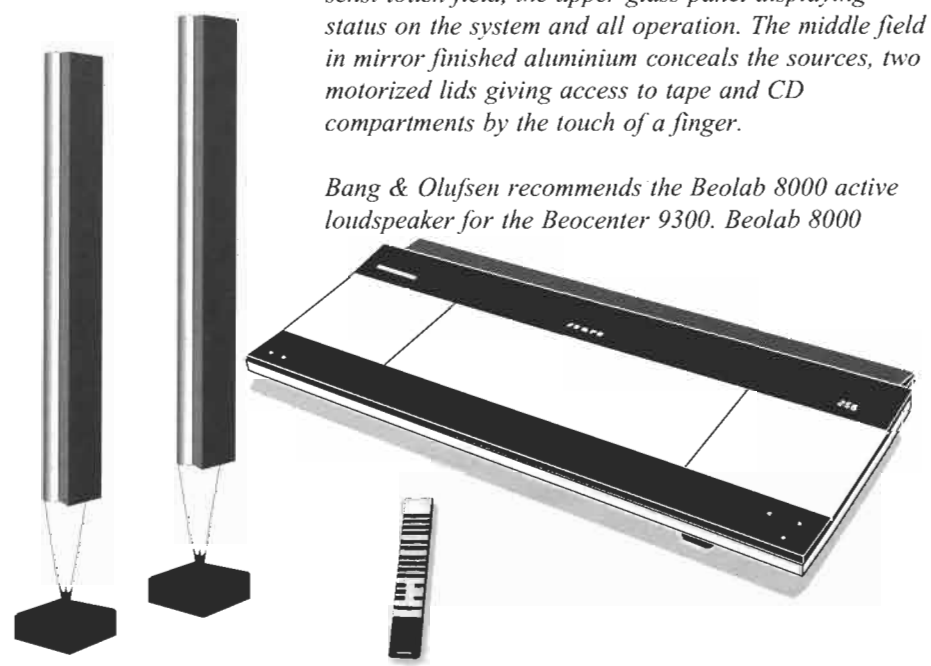
Concept

Beocenter 9300

Beocenter 9300 is the latest incarnation of the classical Bang & Olufsen tricenter concept. It integrates the three essential audio sources radio, CD and cassettedeck into a sculptural design of timeless beauty. Beocenter 9300 has all the benefits associated with the tricenter concept: seamless integration in the room decor, easy setting up, and a minimum of cables emerging from the system. In daily use the integrated menu-driven operation represents a convenience second to none. The hands-on operation includes extensive timer programming functions, and may be completed with the Beolink 1000 terminal for the daily operation of all sources.

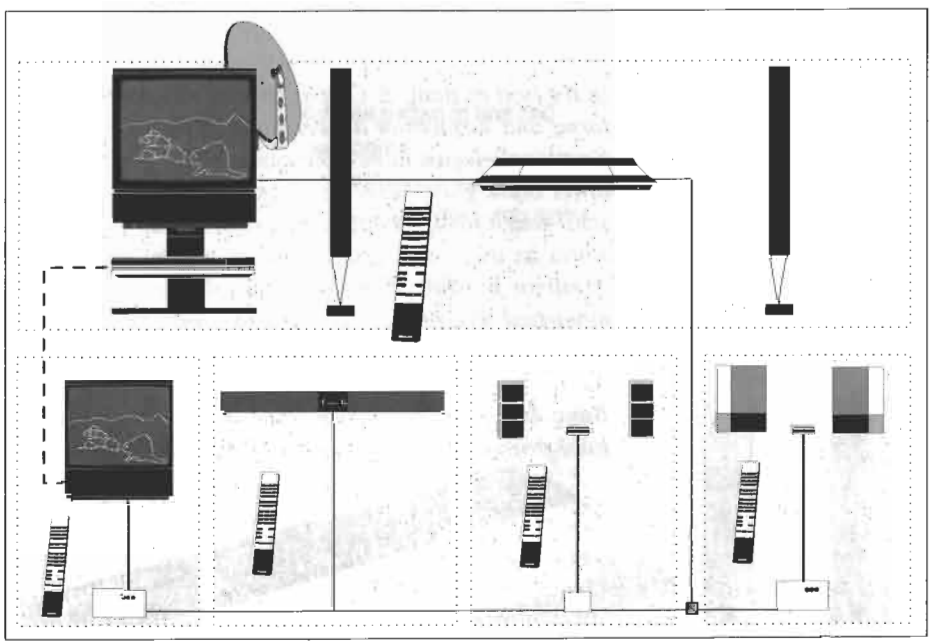
In the best of Bang & Olufsen tradition the intriguing forms and surfaces of Beocenter 9300 reveal their functional elegance once the system is activated, the lower black glass panel constituting the operating sensi-touch field, the upper glass panel displaying status on the system and all operation. The middle field in mirror finished aluminium conceals the sources, two motorized lids giving access to tape and CD compartments by the touch of a finger.

Bang & Olufsen recommends the Beolab 8000 active loudspeaker for the Beocenter 9300. Beolab 8000



matches Beocenter 9300 in all respects by offering a superior sonic performance in a unique design and with an unmatched furnishing flexibility. Other loudspeakers may be used as well, e.g. the flexible Beovox RL 6000 or the minuscule CX 100.

Beocenter 9300 constitutes a complete music system in itself, but may also be extended. One option is ***AV Integration*** *with a Bang & Olufsen TV or Video System, Video System MX 7000 being recommended, and with all sources in the system operated with the Beolink 1000 terminal.*



AV integration and AV distribution. Above: central room AV system, in this case Beocenter 9300 and Video System MX 7000 with Beosat LM satellite receiver. Below: the four Local room setups, as described on pages 9 - 10.

Beocenter 9300 is most suitable for ***Beolink audio or AV-distribution*** *to one or more rooms equipped with Bang & Olufsen Local Control System.*
Beolink 1000 also operates external audio sources, e.g. a Beocord cassettedeck as tape 2 or a Beogram with built-in RIAA amplifier, such as Beogram 7000.

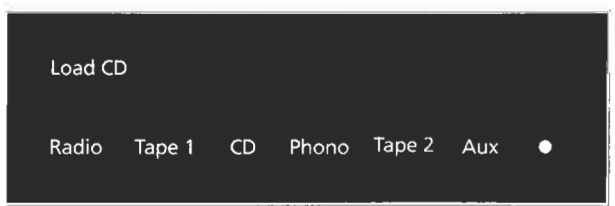
Beocenter 9300 in the home

Beocenter 9300 blends into the room decor thanks to its beautiful design, exquisite materials and classical proportions. The ease of integration is further accentuated by the recommended Beolab 8000 loudspeakers with their unique placement flexibility and sculptural beauty. The placement flexibility is also evident from the ease of installation: Connect the mains cables to the Beocenter 9300 and Beolab 8000, Power Link loudspeaker cables between Beocenter and Beolab, aerial cable to the Beocenter, remove the two CD transport screws and the system is ready for use.

Daily use

In daily use, Beocenter 9300 is just as uncomplicated, the microcomputer in the system taking care of all the tedious switching and monitoring inside the product, with a clear display readout on all operation, and with a *built-in user guidance* by means of *interactive menus.* All available operation options are shown at all stages, from stand-by via source operation and into the more complex operations such as timer programming. In stand-by, the lower sensi-touch field shows the available operation with inscriptions in white for these functions: select source, load source, programming.

The detail shows the operating panel to the ***right*** *on Beocenter 9300, comprising the source selection field in stand-by, with inscriptions in white for the initial operation. A similar field is located to the* ***left*** *and gives access to programming (timer, track, storing, etc). Beocenter 9300 features hands-on programming of 15 timer play and timer record blocks, once only and on different days in the week (weekly + individual weekdays). Timer play includes all internal sources and stand-by, timer record includes off-air sources, i.e. radio.*



Touch one of the fields with white inscription. e.g. CD, and the CD starts playing. The upper display now comes to life, reading out the CD status and the volume status, while the lower operation field reveals the operation options available on CD, e.g. track select and search functions. The same principle of interactive operation applies to all sources and to the functions involving more sources, e.g. recording and timer programming.

Beocenter 9300 system features

Features

- Tricenter with FM/AM radio, power amplifier, CD player and cassettedeck.
- Audio master for Beolink AV integration and in extended audio systems.
- Power amplifier with 2 x 80 watts long-term max. output power.
- Loudspeaker and power amplifier protection with Automatic Power Handling Control.
- Active Beolab loudspeaker connections (Power Link), up to 10 pairs if required.
- Beovox (passive) loudspeaker connections (Speaker Link).
- Master for Local Control System applications.
- Interactive operation.
- Hands-on operation of timer play and timer record functions (15 programmings, once only, weekdays).
- Easy recording with automatic microcomputer controlled record level control.
- Battery backup for clock and timer programmings.
- Low power consumption in stand-by and use.

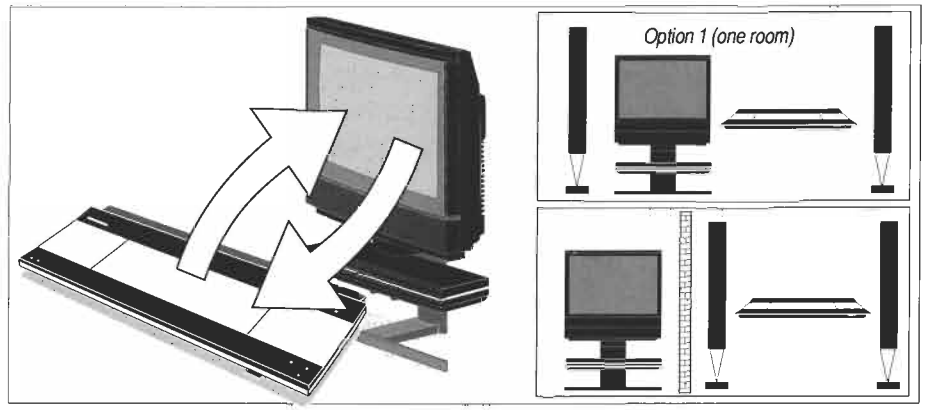
Beocenter 9300 has been designed for a lower power consumption than previous generations of Bang & Olufsen tricenters. In stand-by the power consumption is as low as between 1 and 2 watts, a figure that has been obtained by the use of a dedicated stand-by power supply. In use the power consumption has also been reduced significantly, tests showing a reduction of between 25% and up to 50% compared to previous generations, depending on source and measured at an output of 50 mW.

System master

In the Bang & Olufsen product range three levels of AV integration are available, the first being ***the AV system****, where one AV master controls all sources (Beosystem AV 9000 represents this level). The second level is the* ***Beolink AV integration****, where two masters are interconnected and coordinated, the third level being* ***common operation of both audio and video with one single Beolink terminal****, but without AV functions. (e.g. BeoSound Century and Video System ME 6000)*

Beocenter 9300 is designed as *master in a system*, with full microprocessor control of the internal sources as well as datalink connected external sources. This applies both to audio sources connected via the two sockets TV/AUX and Tape 2/Phono and to video sources in a Bang & Olufsen Video System, provided that the Beovision Video master is connected to the Beocenter 9300 by means of an *Audio Aux Link cable*. This type of setup is called *Beolink AV integration*, in which all sources may be operated with the Beolink 1000 terminal, and it opens up a whole new range of exciting AV functions as described below.

A Beolink AV integrated system may consist of a Beocenter 9300 and a Video System MX 7000, including VX 7000 and Beosat LM. Once the Audio



In stand-by, press SOUND, then 2, STORE, and the Beocenter 9300 is programmed to Option 2, in stand-by, press PICTURE, then 2, STORE, and the Beovision is programmed to Option 2. If the system is to be reprogrammed to AV integration in one room, the procedure is the same, just select 1 for both masters. Note: The above is Beolink 1000 operation only.

AV operation

Audio systems suitable for AV integration: Beosystem 7000/6500/5500, Beosystem 9300/9500/8500/9000, Beosystem 4500, Beosystem 2500/2300. Video Systems suitable for AV integrations are based on these Beovision TV sets: MX 7000/6000/5500/4000/3500, LX 6000/5500/5000/4500, L 5500/4500, LS 5500/4500.

Aux Link cable is connected to the TV/AUX socket on the Beocenter 9300 and to the Audio Aux Link socket on the Beovision the integrated AV system is created.

The masters are programmed for *AV integration in one room on delivery*, and must be reprogrammed only if the AV integration is in two rooms. This is known as an option 2 programming - for a two room setup - and is carried out as described in the margin.

The imminent risk of increased operation complexity caused by the addition of new sources and new functions has been counteracted by the careful design of the Beolink 1000 and the Beolink operation language, where similar functions on different sources are operated the same way.

What is an AV function? *An AV function involves the simultaneous use of both an audio and a video component in the integrated AV system*. AV *reproduction* is the primary option, AV *recording* the second feasible function available.

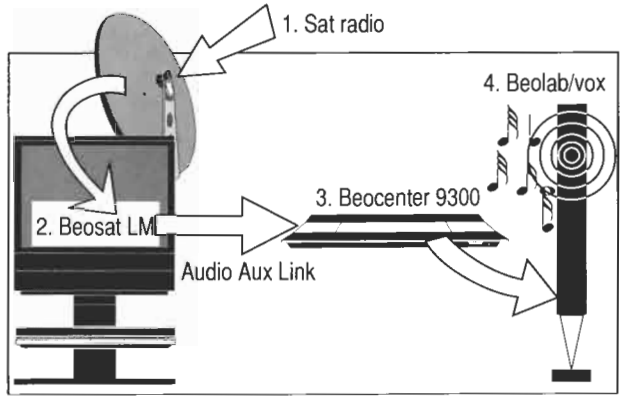
AV reproduction typically involves sound from the video sources (TV, satellite, video tape) played via the loudspeakers of the audio system (to create a broad and

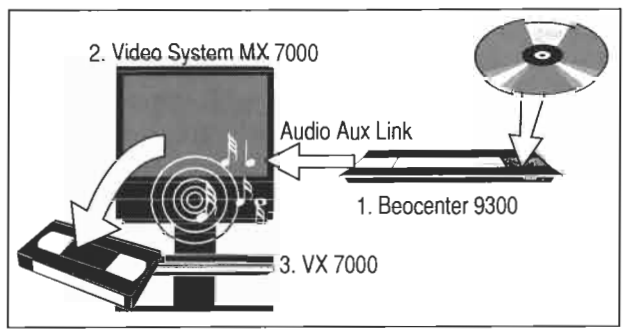
Two of the AV functions available with Beolink AV integration:

Above: reproducing video sources via the loudspeakers of the audio system, in the example reception of satellite radio. All other video sources could be used also, and the sound from these sources recorded on the cassettedeck in the Beocenter 9300. Operation: AV, then video source.

Below: reproduction of audio sources via the Video System, a most useful function if you want to make an audio only recording on the VX 7000. Operation: AV, then audio source. If you want to record on the VX, press the RECORD button twice and the recording starts.

Note: In both illustrations we have simplified the system by showing only one loudspeaker

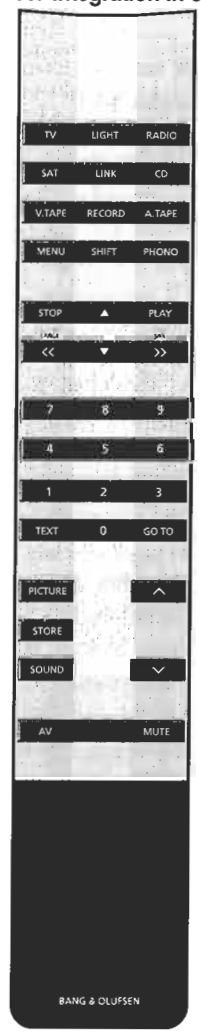




impressive sound image) either as an accompaniment to the video on the screen, or with inactive screen, if you only want the music. Reception of satellite radio with reproduction via the speakers of the audio system and inactive screen is another logical option in a Beolink AV system.

AV recording may involve the use of either the cassettedeck or the VX video tape recorder. Examples could be the recording of music from satellite TV or radio on the cassettedeck or using the VX video tape recorder for the recording of audio only in the very high sound quality possible on a hifi video tape recorder, and with up to 8 or 10 hours of music on one single tape.

AV integration in one room



Beolink 1000. The AV button is located in the bottom row, next to the stand-by button, audio sources are selected at the top, to the right, video sources at the top to the left.

AV integration in one and two rooms

Audio functions and sources are operated as previously, either hands-on or via the Beolink 1000, *video functions and sources are also operated as previously,* with all operation on the Beolink 1000 or via on-screen menus. Operation of the new functions, the *Beolink AV functions*, is via the Beolink 1000 terminal and *involves the use of the AV button.*

1. Reproduction of a video source via the loudspeakers of the audio system: Press the AV button, then the video source you want to listen to, TV, SAT or V.TAPE. You may now operate the source as usual. If the operation is from stand-by, there will be no picture on the screen, if the Video System is already active, there will be both picture on the screen and sound via the audio loudspeakers.

2. Reproduction of an audio source via the video system: Press AV, then select the audio source, RADIO, CD, A.TAPE or PHONO. You may now operate the source as usual. If the operation is from stand-by, there will be no picture on the screen, if the Video System is active, you will see a picture on the screen from the video source and hear the sound from the audio source. This function is useful for simulcast, that is if the TV programme is transmitted with mono sound only but with the soundtrack for the TV programme simultaneously available in stereo on an FM radio programme.

3. Recording follows the same lines: summon the source onto the system where your recorder is, and start the recording on the Beolink terminal.

An example could be the recording of a radio programme directly on the VX video tape recorder: from stand-by, press AV, then RADIO, and a radio

programme is presented by the speakers of the Video System. Press RECORD twice and the recording starts on the video tape recorder.

Recording the sound from a video source on the cassettedeck: press AV, then e.g. SAT, and a SAT programme is presented by the speakers of the audio system. Press RECORD twice and the recording starts on the cassettedeck.

AV integration in two rooms

The Beocenter 9300 may also be placed in one room and the Video System in another. For AV integration they must be interconnected with the Audio Aux Link cable as previously described, and reprogrammed to Option 2. The audio sources may now be played back via the Beovision TV, and recorded on the VX video tape recorder. The video sources may also be played back via the loudspeakers of the audio system, and recorded on the cassette deck.

The Option 2 programming tells the system that the masters are in each their room. When you are facing the Beocenter 9300 it 'knows' that the Video System is in another room and now regards these sources as audio sources. When you are facing the Video System it too 'knows' that an Audio System is connected and in another room. Both masters regard the system in the other room as sources. The consequence of this is that operation is very straightforward: select the source, and it starts playing.
A few examples: in the room where the Video System is placed, you would like to listen to a CD; in stand-by press CD and the CD starts playing with inactive screen - an operation which is identical to that in the room where the Beocenter 9300 is placed. If you want to listen to the TV news in the Beocenter 9300 room, simply press TV and select the program number, and you will hear the news - again the operation is identical in the two rooms.

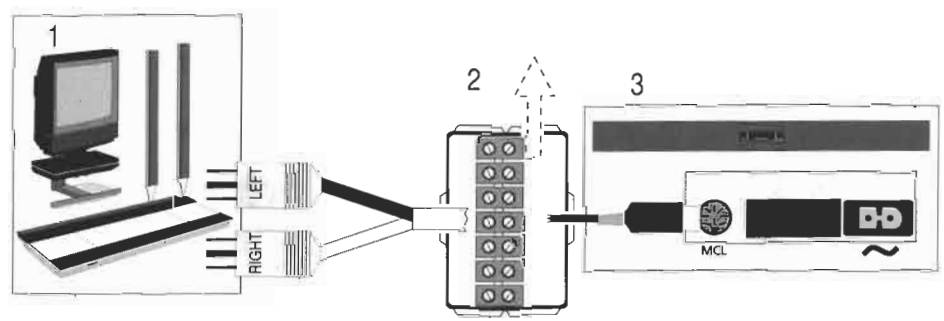
Beolink concept

AV distribution

Beolink as a concept covers both *AV integration* and *AV distribution*, that is distribution of sound and picture from the central room system to other rooms in the home for reproduction via one of the X-tra room products or kits, *LCS 9000, X-tra speaker kit, X-tra Active speaker kit or X-tra TV kit,* and with operation from these room by means of the Beolink 1000 terminal. Beocenter 9300 is designed as the central room audio system in a Beolink audio distribution system, and if Beosystem 9300 is part of an integrated AV system as previously mentioned, it may also serve in the master role for AV distribution.

LCS 9000 and some Beolab speakers with display gives feedback as to source and program/track number, if available, and if the source is not loaded you will be notified in the local room. Although a recording operation cannot be carried out from an X-tra room, you will have a feedback from the central room if a recording is in progress (Audio tape only).

For audio distribution, each local room is equipped with an X-tra product or kit, and a special MCL cable connects the kit with the audio master in the central room, for audio and data signals, while a coax cable is used for the distribution of video signals from the central room VX video tape recorder, to rooms with X-tra TV kits.



Connecting and installation of the the LCS 9000 for a Local room is very easy as shown in the illustration
1. Central room system.
2. LCS 9000 comes with a box for the connection. The dotted arrow shows that more rooms can be connected.
3. Local room connection panel on LCS 9000.

Beolink 1000 is used for the operation. Compared to the central room, operation in the local room has deliberately been concentrated on *the daily functions* - to give an easier and more secure operation of a system which is in effect invisible to you in the local room.

All sources that are datalink connected to the central room *audio master* may be selected with the Beolink 1000. This also applies to *video* sources, if the central room system is an AV integrated system.

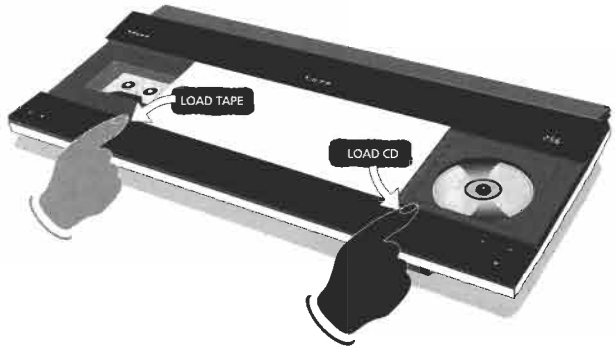
Local room operation

This is the operation available from the local room with a Beolink 1000 terminal: *Source selection, source operation*, e.g track selection, search functions, step and wind/rewind, *turn* functions, for example turning an audio tape from one side to the other, and selection of language on satellite TV, stereo/mono selection and sound track on video tapes, *volume adjustments* and *sound adjustments.* Tuning and timer programming is ***not*** available from the local room, nor is presetting or clearing of program numbers.

The sources

Beosystem 9300 contains three sources: FM/AM radio, CD player and cassettedeck.

The CD and tape compartments are available for loading and unloading by the touch of a finger on the operation panel



Radio

Indoor AM antenna

The FM tuner is of the phase lock loop type and a very compact construction. Tuning is in steps of 50 kHz, for optimum reception of stations that do not adhere to the standard 100 kHz steps, e.g. certain cable network FM stations. Tuning to FM stations can be carried out either as a standard tuning search or directly to a known frequency. The AM receiver is optimized for an indoor loop antenna (order no. 8720038).

If you select a preset above 19, e.g. 24, the small display to the left confirms your selection, then briefly shows the frequency of the radio programme before reverting to show the selected preset, in this case 24.

Beocenter 9300 has 30 presets, FM/AM, which may be stored in any order. The presets may also be cleared, a function that is helpful especially if identical stations are stored on different program numbers. The display at the top shows the presets, up to 19, and if stations have been preset above this number a + is displayed. The preset currently selected blinks slowly. FM stations may be preset with information on mono/stereo and fine tune adjustments.

CD player

The most important features of the CD player are:

- Horizontally placed CD mechanism in compartment with motorized cover.
- Playback of 5" and 3" discs.
- Track search, track select programming, step function.
- Spring suspended deck.
- Bitstream conversion system.

The CD mechanism is mounted on the floating inner chassis. The disc is automatically clamped when the lid closes, and once it is clamped the disc is only in contact with the spindle of the CD mechanism. The clamp mechanism is a pressure type with no physical contact between the CD mechanism and the chassis when the clamp engages the compact disc, locking it into place, and combined with the substantial weight of the Beocenter 9300 this means that CD playback is virtually immune to vibrations coming from the outside, e.g. caused by jolts, knocks etc.

Track select programming

Programming a track selection is carried out directly on the Beocenter 9300. Both STORE and CLEAR programming is possible, STORE being used to compile some tracks from a CD, CLEAR being the logical choice if you want to leave out a few tracks. STORE and CLEAR results in playback of the selected tracks in *chronological order*, e.g. 1, then 4, 6, 9, 12, 21. Up to 50 tracks may be included in a sequence. Tracks will only be played once in a sequence.

Display readout

The display in the middle of the glass top panel shows the number of tracks on the CD, max. 19 (track bar). If a selection of tracks has been programmed, the track bar shows only the programmed tracks. The display to the right shows the playing time of the track in progress in minutes and seconds, and if there are more than 19 tracks on the CD this is indicated by a + on the track bar. Track numbers above 19 are displayed briefly in the right display, before it reverts to playing time readout. The track in progress is indicated by a blinking digit on the track bar.

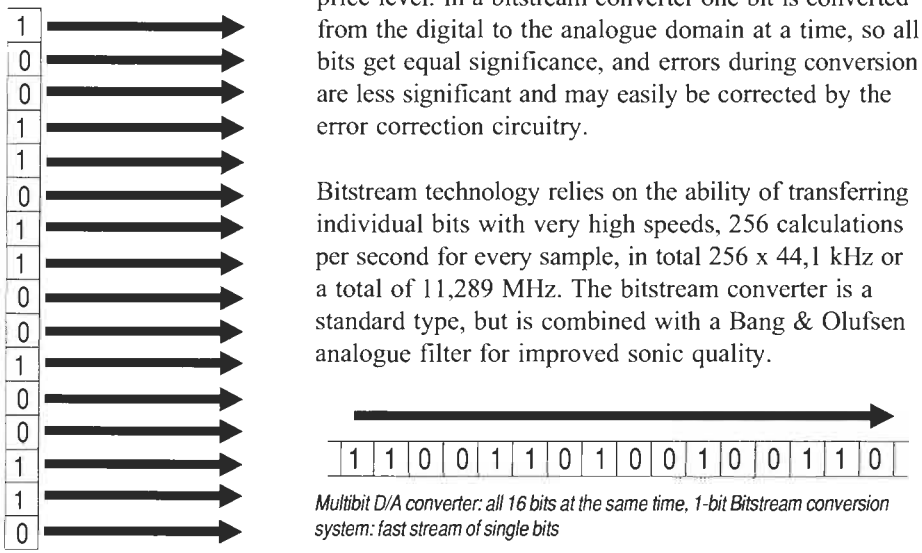
Bitstream conversion system

The new generation bitstream D/A conversion system and error correction means that the CD player in Beocenter 9300 is more immune to damaged compact discs, e.g. scratches, than previous generations of CD players.

The CD player in Beocenter 9300 contains a *bitstream* conversion system like the one pioneered in the CD player in BeoSound Century. *Multibit* converters pose great demands on the precision in the integrated circuits used for the converter. They also require very narrow tolerances and are sensitive to the surrounding temperatures and aging.

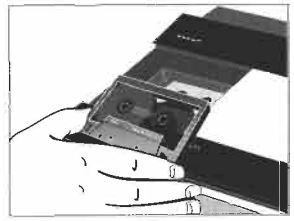
Bitstream converters are less critical in production and use compared to multibit converters at a comparable price level. In a bitstream converter one bit is converted from the digital to the analogue domain at a time, so all bits get equal significance, and errors during conversion are less significant and may easily be corrected by the error correction circuitry.

Bitstream technology relies on the ability of transferring individual bits with very high speeds, 256 calculations per second for every sample, in total 256 x 44,1 kHz or a total of 11,289 MHz. The bitstream converter is a standard type, but is combined with a Bang & Olufsen analogue filter for improved sonic quality.



Multibit D/A converter: all 16 bits at the same time, 1-bit Bitstream conversion system: fast stream of single bits

Cassettedeck



Important features of the cassette deck are:

- Horizontally placed tape compartment with motorized cover.
- Auto Record Level.
- Auto reverse.
- Auto Track search, step function.
- Auto tape switch.
- HX Pro.
- Noise reduction.

The tape deck in Beocenter 9300 is optimized for ease of operation and recording. With regard to features the cassette deck is comparable with the cassette decks in other Bang & Olufsen products.

Auto track search

Auto track search is similar to the function on CD, and with the same operation: select a track for playback, step to next or previous tracks. The auto track function detects new tracks on the pauses between tracks. A pause is defined as a passage of signals not exceeding -25 dB for a duration of at least 2.5 seconds.

Auto Record Level

Auto Record Level ensures an uniform and optimal recording level from all sources and from tape to tape, without overload. The Auto Record Level developed by Bang & Olufsen is based on digital technology and is monitored and adjusted by the microcomputer.

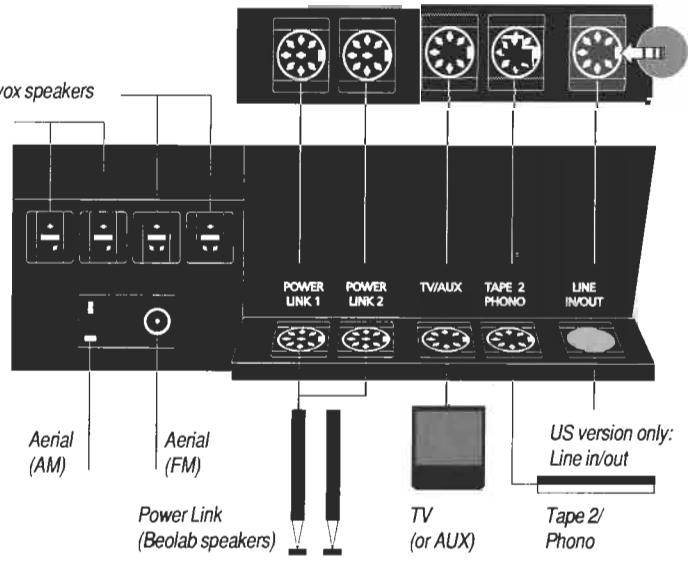
The recording level is continuously supervised by the microcomputer, and if a signal overload exceeding a specified period is encountered, the record level is automatically adjusted down to a level where overload of the tape does not occur. The recording then continues on this level, unless new powerful signals threaten to overload, in which case the level is again adjusted down. The adjustments are unnoticeable in subsequent playbacks of the tape. The microcomputer controlled monitoring of the signal is very precise, *so the automatic adjustment of the record level is superior*

to adjustments carried out by a supervising person. It is also a great convenience in daily life, because you may start a recording instantaneously, carry it out without supervision, be sure of an optimum result and even let persons without technical qualifications make a perfect recording - every time. In copying a CD (or a record) onto tape a further convenience is that the CD pauses if the tape runs out during the recording, and that the tape goes to REC PAUSE when the CD stops.

The noise reduction is set to ON on delivery, and can be set to OFF in playback or REC PAUSE. Auto reverse is automatic, but may be switched off in playback or REC PAUSE, e.g. to protect a tape from being recorded on side 2. The Auto Tape Switch adjusts the cassettedeck automatically to ferro, chrome or metal tapes for optimum performance.

Connections for external sources

The external sources are connected on the back as shown in the illustration:



Speakers 1 connection for Beovox speakers
Speakers 2 connection (MCL for Local room)
Note: the drawing shows a socket only available on the American version, a Line in/out. The socket is covered with a hole plug with signal feedthrough on delivery
Aerial (AM)
Aerial (FM)
Power Link (Beolab speakers)
TV (or AUX)
Tape 2/ Phono
US version only: Line in/out

External sources

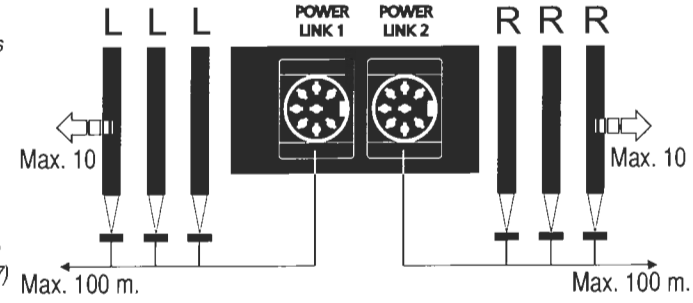
Headphone connection is via a 6 mm socket below the front.

As previously described you may create a Beolink AV system by connecting a Beovision video master to the socket TV/AUX. You can also connect a Beocord cassettedeck with datalink as Tape 2 (e.g. Beocord 7000) or a record player (Beocord 7000 with RIAA amplifier being recommended), using the TAPE 2/PHONO socket. Operation of Tape 2/Phono is either on the product or via the Beolink 1000, and there is no status display on the Beocenter 9300.

Loudspeakers

Active Beolab loudspeakers are connected by means of the Power Link connections on the rear. You may connect them in two different ways: either in the traditional way with one cable from Beocenter 9300 to each of the loudspeakers, or as a bus connection, with one cable from the Beocenter 9300 to a Beolab loudspeaker and from here further on to the second Beolab loudspeaker.

The two connections methods give greater freedom in the placement of the loudspeakers in the room, and also means that up to 10 pairs of loudspeakers may be connected with a cable length of up to 100 metres, as shown in this illustration.
Note: Beolab 8000 bus-connection is possible with the use of a T-connector (6270597)



Conclusion

Beosystem 9300 is a continuation of the conceptually and stylistically superior Bang & Olufsen tricenter concept with CD, radio and cassettedeck, with a completely renewed technical construction, destined to be one of the central system products in the Bang & Olufsen product range in the years to come.

Technical specifications

Beocenter 9300
(Type no. 2616)

Concept	Tricenter	Sources: radio, CD, CC
	Audio master in extended systems	Beolink AV systems, audio systems, Beolink audio/AV distribution
Operation	Local operation	All functions
	Remote operation	Beolink 1000, daily operation (opt. extra)
Cabinet finish	Upper surfaces	Glass, anodized aluminium
	Rear/lower parts	Moulded plastic, metal chassis
Power amplifier	Long-term max. output power	2 x 80 watts/8 ohms
	Harmonic distortion	< 0.1%/30 watts
Radio	Pretuned radio programs	30 FM or AM
	Radio ranges	FM-LW-MW
	FM range	87.5-108 MHz
	AM range	LW 150 - 350 kHz
		MW 520 - 1610 kHz
Tape recorder	Built-in	
	Recording system	HX PRO
	Tape transport	Auto Reverse
	Noise reduction	Yes
	Frequency range	30-16,000 Hz
	Signal-to-noise ratio chrome	Noise reduction On > 65 dB
	Search system	Auto Track
	Record Level	Auto Record Level
	Tape switch	Auto ferro/chrome/metal
CD player	Built-in	
	Frequency range	20-20,000 Hz +0.5 -2.5 dB
	Signal-to-noise ratio A-weighted	> 91 dB
	Converter system	Bitstream
Timer programming	15 Play/Record	Once only, weekly
Connections	Beocord audio Tape 2	Tape 2/Phono socket
	Beogram LP (with RIAA built-in)	Tape 2/Phono socket
	Beolab speakers	2 x Power Link 8-pin
	Beovox speakers	Speakers 1, 2 x 4-pin
	Beovision	Audio Aux Link 7-pin
	Local rooms, speakers 2	Master Control Link 2 x 3-pin
Dimensions	W x H x D/Weight	76 x 11 x 34 cm/14 kg
	Power consumption/Minimum	Max. 200 watts/2 watts

Subject to change without notice

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